



**Provincial Air Quality Objective  
Information Sheet**

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**British Columbia Ambient Air Quality Objectives**

**Introduction**

The British Columbia *Environmental Management Act*<sup>a</sup> provides the Minister of Environment with the authority to develop objectives to manage air quality in B.C. Air quality objectives are non-statutory limits (i.e. not legally binding). Air quality objectives are used to:

- Gauge current and historical air quality,
- Guide decisions on environmental impact assessments and authorizations,
- Guide airshed planning efforts,
- Inform regulatory development, and
- Develop and apply episode management strategies such as air quality advisories.

**Status of Air Quality Criteria in B.C.**

The province of B.C. uses a suite of ambient air quality criteria that have been developed provincially and nationally to inform decisions on the management of air contaminants (see Tables 1 and 2). These include Provincial Air Quality Objectives (AQOs)<sup>b</sup>, the former Pollution Control Objectives (PCOs)<sup>c</sup>, National Ambient Air Quality Objectives (NAAQOs)<sup>d</sup> and Canadian Ambient Air Quality Standards (CAAQS)<sup>e</sup>. Metro Vancouver has also established air quality objectives that apply within the Metro Vancouver area.<sup>f</sup>

For any particular averaging period, a range of air quality criteria may exist (e.g. Levels A, B and C), reflecting the different conditions under which criteria may be applied (see Table 3). In the case of PCOs, these may also differ across source sectors. To begin streamlining the existing framework of air quality criteria and to better reflect current practices (subject to site-specific considerations by the Director), only the most stringent criteria for each averaging period and management level are identified in Table 1. The contents of this table will be updated as new objectives are adopted.

For more information on air quality objectives, visit [www.bcairquality.ca](http://www.bcairquality.ca) or contact:

B.C. Ministry of Environment  
Environmental Standards Branch  
Tel: (250) 387-9938

## B.C. Ambient Air Quality Objectives – Updated October 21, 2014

Table 1. Summary of B.C. ambient air quality objectives. Levels are described in Table 3. Those criteria published in the original units are highlighted in bold. Where conversions have been made between ppb and  $\mu\text{g}/\text{m}^3$ , calculations have been based on standard conditions of 25°C and 1 atm.

Contaminant	Avg. Period	Criteria	Level	Air Quality Objective		Date Adopted
				$\mu\text{g}/\text{m}^3$	ppb	
Carbon Monoxide (CO)	1 hour	PCOs for Food-processing, Agriculturally Orientated, and Other Misc. Industries	A	<b>14,300</b>	<b>13,000</b>	1975
			B	<b>28,000</b>	<b>25,000</b>	
			C	<b>35,000</b>	<b>30,000</b>	
	8 hour	PCOs for Food-processing, Agriculturally Orientated, and Other Misc. Industries	A	<b>5,500</b>	<b>5,000</b>	1975
			B	<b>11,000</b>	<b>10,000</b>	
			C	<b>14,300</b>	<b>13,000</b>	
Formaldehyde	1 hour	<a href="#">Provincial AQO</a>	Action Episode	<b>60</b> <b>370</b>	50 308	2005
Nitrogen Dioxide (NO <sub>2</sub> )	1-hour	Interim Provincial AQO	-	188	<b>100<sup>b</sup></b>	2014
	Annual	Interim Provincial AQO	-	<b>60</b>	32	2014
Ozone (O <sub>3</sub> )	1-hour	NAAQO Maximum Acceptable Level	Advisory	<b>160</b>	82	1989
	8 hour	<a href="#">CAAQS</a>	-	123	<b>63<sup>h</sup></b>	2013
Particulate Matter <2.5 microns (PM <sub>2.5</sub> )	24 hour	<a href="#">Provincial AQO</a>	-	<b>25<sup>i</sup></b>	-	2008
		<a href="#">CAAQS</a>	-	<b>28<sup>j</sup></b>	-	2013
	Annual	<a href="#">Provincial AQO</a>	AQO Goal	<b>8</b> <b>6</b>	- -	2005 2005
		<a href="#">CAAQS</a>	-	<b>10<sup>k</sup></b>	-	2013
Particulate Matter <10 microns (PM <sub>10</sub> )	24 hour	<a href="#">Provincial AQO</a>	-	<b>50</b>	-	2005
Sulphur Dioxide (SO <sub>2</sub> )	1-hour	Interim Provincial AQO	-	200	<b>75<sup>l</sup></b>	2014
Total Reduced Sulphur (TRS) compounds measured as H <sub>2</sub> S	1 hour	PCOs for the Forest Products Industry	A	<b>7</b>	<b>5</b>	1977
			B	<b>28</b>	<b>20</b>	
	24 hour		A	<b>3</b>	<b>2</b>	1977
B	<b>6</b>	<b>4</b>				

<sup>a</sup> <http://www.env.gov.bc.ca/epd/main/ema.htm>

<sup>b</sup> For more information, see: <http://www.bcairquality.ca/regulatory/air-objectives-standards.html>

<sup>c</sup> Pollution Control Objectives were developed by the B.C. Ministry of Environment and the B.C. Department of Lands, Forest and Water Resources in the 1970s for five source sectors: the Forest Products Industry, the Mining, Smelting and Related Industries, Food-processing, Agriculturally Orientated and Other Miscellaneous Industries, the Chemical and Petroleum Industries and Municipal Type Waste Discharges. These criteria, which referred to all discharges to the environment, were rescinded in 2006, but the ambient air quality objectives continue to be used for reference purposes.

<sup>d</sup> Canada Gazette, Part I, Department of the Environment, *National Ambient Air Quality Objectives for Air Contaminants*, August 12, 1989.

<sup>e</sup> Canadian Ambient Air Quality Standards for 2015 and 2020 were adopted in 2013 by Canadian Council of Ministers of the Environment, and supersede Canada-wide Standards for Particulate Matter and Ozone (see: <http://www.gazette.gc.ca/rp-pr/p1/2013/2013-05-25/html/notice-avis-eng.html#d106>).

<sup>f</sup> Metro Vancouver (2011) *Metro Vancouver Integrated Air Quality and Greenhouse Gas Management Plan*.

<http://public.metrovancouver.org/about/publications/Publications/IntegratedAirQualityGreenhouseGasManagementPlan-October2011.pdf>

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<sup>g</sup> Achievement based on annual 98<sup>th</sup> percentile of daily 1-hour maximum, over one year

<sup>h</sup> Achievement based on annual 4<sup>th</sup> highest daily 8-hour maximum, averaged over three consecutive years.

<sup>i</sup> Achievement based on annual 98<sup>th</sup> percentile of daily average, over one year

<sup>j</sup> Achievement based on annual 98<sup>th</sup> percentile of daily average, averaged over three consecutive years

<sup>k</sup> Achievement based on annual average, averaged over three consecutive years

<sup>l</sup> Achievement based on annual 99<sup>th</sup> percentile of daily 1-hour maximum, over one year

Table 2. B.C. air quality objectives for total suspended particulates and dustfall.

Contaminant	Avg. Period	Source	Level	Air Quality Objective	Date Adopted
<b>Total Suspended Particulate Matter (TSP)</b>	24 hour	MDL – NAAQO; Levels B and C – PCOs for various sectors	MDL	120 µg/m <sup>3</sup>	1974
			B	200 µg/m <sup>3</sup>	1974-79
			C	260 µg/m <sup>3</sup>	1979
<b>Total Suspended Particulate Matter (TSP)</b>	Annual (geometric)	PCOs for various sectors	A	60 µg/m <sup>3</sup>	-
			B	70 µg/m <sup>3</sup>	-
			C	75 µg/m <sup>3</sup>	-
<b>dustfall</b>	1 month	PCOs for the Mining, Smelting, and Related Industries	Lower Upper	1.7 mg/(dm <sup>2</sup> -d) 2.9 mg/(dm <sup>2</sup> -d)	1979
<b>dustfall: residential</b>	2 week	PCOs for the Forest Products Industry	A B	1.7 mg/(dm <sup>2</sup> -d) 1.7 mg/(dm <sup>2</sup> -d)	1977
<b>dustfall: other</b>	2 week	PCOs for the Forest Products Industry	A B	2.9 mg/(dm <sup>2</sup> -d) 2.9 mg/(dm <sup>2</sup> -d)	1977
<b>dustfall: residential</b>	1 month	PCOs for Food-processing, Agriculturally Orientated, and Other Misc. Industries and Chemical and Petroleum Industries	A B C	1.7 mg/(dm <sup>2</sup> -d) 1.7-2.3 mg/(dm <sup>2</sup> -d) 2.3 mg/(dm <sup>2</sup> -d)	1974-75
<b>dustfall: other</b>	1 month	PCOs for Food-processing, Agriculturally Orientated, and Other Misc. Industries and Chemical and Petroleum Industries	A B C	2.9 mg/(dm <sup>2</sup> -d) 2.9-3.5 mg/(dm <sup>2</sup> -d) 4.1 mg/(dm <sup>2</sup> -d)	1974-75

### Abbreviations :

- MDL – National Maximum Desirable Level (NAAQO)
- MAL – National Maximum Acceptable Level (NAAQO)
- MTL – National Maximum Tolerable Level (NAAQO)
- CAAQS – Canadian Ambient Air Quality Standards
- AQO – Provincial Air Quality Objective (B.C.)
- Goal – Provincial Planning Goal (B.C.)
- A, B and C – Provincial Level A, B and C Pollution Control Objectives (B.C.)

Table 3. Description of Pollution Control Objectives and National Ambient Air Quality Objectives

Pollution Control Objectives	Level A	Level B	Level C
<b>Forest Products Industry 1977</b>	Desirable goals for all discharges and will generally apply to all new discharges, and to existing installations whose discharges are significantly altered in quantity or quality	Intended as acceptable interim objectives for all other discharges and will be reviewed periodically by the Direction of Pollution Control	
<b>Chemical and Petroleum Industries 1974</b>	For new and proposed discharges, and within the limits of the best practicable technology, to existing discharges by planned staged improvements for these operations	Intermediate objective for all existing discharges to reach within a period of time specified by the Director, and as an immediate objective for existing discharges which may be increased in quantity or altered in quality as a result of process expansion or modification	Immediate objective for all existing chemical and petroleum industries to reach within a minimum technically feasible period of time
<b>Food-processing, Agriculturally Oriented and Other Miscellaneous Industries 1975</b>	Intended to provide adequate long-term protection	Not defined	Intended to provide adequate short-term protection of the environment
Pollution Control Objectives	Lower Range	Upper Range	
<b>Mining, Smelting and Related Industries 1979</b>	Defined for discharges as applying to sensitive environmental situations	Defined for discharges as applying to where it can be shown that unacceptably deleterious changes will not follow	
National Ambient Air Quality Objective	Maximum Desirable Level (MDL)	Maximum Acceptable Level (MAL)	Maximum Tolerable Level (MTL)
	Long-term goal for air quality and provides a basis for an anti-degradation policy for unpolluted parts of the country and for the continuing development of pollution control technology	Intended to provide adequate protection against effects on soil, water, vegetation, materials, animals, visibility, and personal comfort and well-being	Time-based concentrations of air contaminants beyond which, owing to a diminishing margin of safety, appropriate action is required without delay to protect the health of the general population